REMARKS

Claims 1-7, 12, 31 and 44-46 were pending in the present application. Claims 1, 12 and 44 have been amended. The remarks made herein are designed to place the case in condition for allowance. As such, Applicants respectfully request that the remarks made herein be entered and fully considered.

Rejection of Claims 1-7, 12, 31 and 44-46 Under 35 U.S.C. § 101 and §112

Claims 1-7, 12, 31 and 44-46 remain rejected under 35 U.S.C. §101 because "[t]he claimed invention is not supported by a credible, substantial, specific, or well-established utility. Applicants respectfully traverse this rejection for the reasons stated below.

The standards for establishing utility sufficient to meet the requirements of 35 U.S.C. §101 are laid out in the "Utility Examination Guidelines" published in the January 5, 2001 Federal Register (hereinafter "Utility Guidelines"). 66 Fed. Reg. 1092 (2001). Specifically, the guidelines set forth two situations for satisfying the utility requirement: where Applicant has a well established utility, as it would be clear from reading the specification and claims that the invention has a well established utility, and where Applicant has asserted a specific and substantial utility that is credible. In order to make an effective rebuttal of utility, the Examiner must make a prima facie showing that either there is no well established utility or that Applicants' asserted utility is either not specific, substantial, or credible. Applicants respectfully submit that Applicants specification as filed has a well established utility. Still further, Applicants submit an asserted specific substantial and credible utility has been set forth in the application as filed. For the reasons discussed below, reconsideration of the rejection is requested.

I. The application as filed has a well established utility.

According to the Utility Examination Guidelines:

If at any time during the examination, it becomes readily apparent that the claimed invention has a well-established utility, do not impose a rejection based on lack of utility. An invention has a well-established utility if (i) a person of ordinary skill in the art would immediately appreciate why the invention is useful based on the characteristics of the invention (e.g., properties or applications of a product or process), and (ii) the utility is specific, substantial, and credible. See MPEP §2107 II (A) (3). Contrary to the Examiner's assertions, as demonstrated below, the TANGO405 molecules of the present invention have a well established, credible and substantial utility. Applicants respectfully submit that one of skill in the art would immediately appreciate why the invention disclosed and claimed in the present application was useful based on the characteristics of the disclosed TANGO405 molecule.

As disclosed within the present specification and as discussed throughout prosecution to date, TANGO 405 is a member of the C-type lectin family. The Examiner acknowledges this at page 3 of the most current Office Action by stating "[t]he main issue is not whether the present TANGO405 is a member of C-type lectin family..." Applicants note, however, that at the time of filing, the inventors not only identified the TANGO405 as a C-type lectin family member, they had shown that TANGO405 was greatly homolgous (89%) to murine dectin-2. In fact, one of skill in the art might regard such high homology between species as orthologous molecules. Murine dectin-2 had been cloned in 1999 (refer to Fernandes et al., Cancer Research 1999, 59:2709-2717; submitted herewith in a Supplemental Information Disclosure Statement (IDS)) and was believed to be involved in the immune response. Based on this knowledge, and the fact that the inventors had identified a human C-type lectin significantly homologous to murine dectin-2, Applicants asserted at pages 56 and 57 of the specification, beginning at line 28 of page 56, that "[h]uman and murine TANGO405 are also involved in activating or inhibiting one or more types of lymphocytes, thereby modulating T-cell mediated immune responses, non T-cell mediated immune responses, inflammatory responses, and other components of the immune response in mammals." Thus, Applicants submit that one of skill in the art would immediately appreciate the utility of the newly identified human C-type lectin significantly homologous to the

murine dectin-2 as being useful in modulation of the immune response.

II. Applicants have asserted a specific, substantial and credible utility.

At the time of filing of the present application, the inventors recognized that they had cloned a human C-type lectin which had significant structural similarities to murine dectin-2. The inventors also recognized that this polypeptide was useful in modulation of the immune response. Such recognition and asserted utility is set forth throughout the specification. See, *e.g.*, pages 56 and 57 of the specification, beginning at line 28 of page 56. Applicants submit that the utility asserted in the specification as filed is sufficient to support a credible, substantial, and specific utility to meet the requisite standard for utility under the present guidelines of the USPTO that the presently claimed compositions are useful in the modulation of the immune response. As described below, work performed by other groups since the time of filing of the present invention have further substantiated 1) that TANGO405 is the human orthologue of murine dectin-2; and 2) the asserted utility of the cloned TANGO405 of the present invention.

a. TANGO405 has been confirmed as the human dectin-2 orthologue

As stated above, as of the filing date of the present application, Applicants had characterized TANGO405 as a human C-type lectin with significant sequence similarity to murine dectin-2. Interestingly, Kanazawa et al. recently published an article in the Journal of Investigative Dermatology in which they disclose the cloning of human dectin-2 (Kanazawa et al., J. Invest. Dermatol. 2004 Jun;122(6):1522-4; submitted herewith in a Supplemental IDS). The Kanazawa et al. sequence has been submitted in GenBank as Accession Number AY365135. Applicants note that the sequence disclosed by Kanazawa et al. is 100% identical to the TANGO405 sequence disclosed in the present application (refer to the enclosed sequence alignment in Appendix A). This peer reviewed publication therefore confirms that TANGO405 is the human orthologue of murine dectin-2.

b. TANGO405 has a credible, substantial, specific and well-established utility

As discussed above, as of the filing date, Applicants asserted that TANGO405 was involved in the modulation of the immune response. Interestingly, Aragane et al. recently published data indicating that murine dectin-2 plays a role in the mediation of UV-induced immunosuppression (Aragane et al. J. Immunology 2003, 171:3801-3807; submitted herewith in a Supplemental IDS). Therefore, knowing that TANGO405 is the human orthologue of murine dectin-2, combined with the data demonstrating a role for dectin-2 in mediation of UV-induced immunosuppression, thereby corroborates Applicants assertion that TANGO405 plays a role in modulating the immune response.

III. The Examiner has not made an effective *prima facie* showing of lack of utility

In order to rebut an asserted utility, an Examiner must: *make a prima facie showing of no specific and substantial credible utility and the Examiner must establish* ***that it is more likely than not that a person skilled in the art would not consider credible any specific and substantial utility asserted*** *by the applicant for the claimed invention.* See MPEP §2107 II (C) (2). Applicants submit the Examiner has not met the requisite requirement to rebut Applicants asserted utility.

In the previous Office Action response submitted on August 18, 2003, Applicants had demonstrated that the facts of the present case were very similar to those exemplified in Example 10 of the Revised Interim Utility Guidelines, and that such close similarity would be sufficient to confer upon the TANGO405 molecules of the present invention a "well-established utility". The Examiner, however, disagrees and states "The instant situation is completely different from that of DNA ligases because in the enzyme art, the function activity is predictable when a polypeptide shares a high homology, such as 95%, to known enzymes, which, in general, have decisive and specific enzymatic activity, and the main function of DNA ligases is to ligate DNA regardless of different molecules of DNA ligases." The Examiner additionally states "[t]he main issue is not whether the present TANGO405 is a member of C-type lectin family, rather, the issue is that, even if TANGO405 may be a C-type lectin, the function of C-type lectins is known in the art to be diverse and not predictable merely based upon sequence homology."

Applicants respectfully traverse this rejection, and posit that the Examiner's arguments are rendered moot in light of the discussion above which clearly demonstrates that TANGO405 is the human orthologue of murine dectin-2 and the publication demonstrating that dectin-2 is involved in the mediation of UV-induced immunosuppression. Contrary to the Examiner's assertion, mediation of the immune response is a specific utility and not diverse and unpredictable.

Additionally, Applicants submit that the Examiner has not made a sufficient showing to establish, more likely than not, the utility set forth in the present specification would not be specific or substantial, as sufficient support or factual findings have not been relied upon to make such a showing to rebut Applicants' assertion that the TANGO405 molecules would more likely than not be useful. The Examiner makes a generic statement as to disbelief of the asserted utility because the molecule is a member of the C-type lectin family. However, this is not sufficient to meet the requisite standard that, it is more likely than not, that one of skill in the art would doubt Applicants' asserted utility. In fact, as described herein, Applicants assertion was correct and has been supported by later validation work. As such, Applicants submit maintenance of the present rejection is improper.

Thus, Applicants submit that the application as filed sets forth the TANGO405 molecules of the invention which have a well established, credible and substantial utility. Still further, Applicants submit a specific, substantial and credible utility has been set forth, as described in further detail above. The Examiner has not provided the preponderance of evidence required by the Utility Guidelines to establish the utility asserted for the TANGO405 molecules of the invention is, in view of the whole record, more likely than not neither credible, specific, or substantial. Therefore, Applicants respectfully request reconsideration and withdrawal of the foregoing 35 U.S.C. § 101 rejection over claims 1-7, 12, 31 and 44-46.

Rejection of Claims 1-7, 12, 31 and 44-46 Under 35 U.S.C. §112, first paragraph

Claims 1-7, 12, 31 and 44-46 are rejected under 35 U.S.C. §112, first paragraph. Specifically, the Examiner has maintained the argument that one skilled in the art would not know how to use the claimed invention since the claimed invention is not supported by either a credible asserted utility or a well established utility.

Applicants respectfully traverse this rejection. As discussed above in response to the utility rejection, the claimed invention does have a credible asserted utility, and as such one of skill in the art would be able to make and use the claimed invention.

The Examiner further maintains the rejection over the recitation of fragments comprising 40 nucleic acids or nucleic acids encoding fragments of at least 15 contiguous amino acids. Applicants respectfully traverse the rejection, however in order to expedite prosecution, Applicants have canceled claims 1b), 1d) and 12b). Therefore, Applicants respectfully request reconsideration and withdrawal of the foregoing 35 U.S.C. §112, first paragraph rejection over claim 1-7, 12, 31 and 44-46.

Rejection of Claim 44 Under 35 U.S.C. §112, second paragraph

Claim 44 is rejected under 35 U.S.C. §112, second paragraph, as "[b]eing indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." Specifically, the Examiner states that claim 44 is "[i]ndefinite for the recitation of "*a* nucleic acid molecule of claim 1". Applicants have amended claim 44 as suggested by the Examiner to read "*the* nucleic acid molecule of claim 1". Therefore, Applicants respectfully request reconsideration and withdrawal of the foregoing 35 U.S.C. §112, second paragraph rejection over claim 44.

CONCLUSION

In view of the amendments and remarks made herein, Applicants respectfully submit that the rejections presented by the Examiner are now overcome and that this application is now in condition for allowance. Early notice to this effect is solicited.

If in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned.

It is believed that this paper is being filed timely and that a three month extension of time is required. In the event any additional extensions of time are necessary, the undersigned hereby authorizes the requisite fees to be charged to Deposit Account No. 501668.

Entry of the remarks made herein is respectfully requested.

December 14, 2004	MILLENNIUM PHARMACEUTICALS, INC. By _____ Mario Cloutier Limited Recognition Under 37 C.F.R. §10.9(b) 40 Lansdowne Street Cambridge, MA 02139 Telephone – (617) 577-3522 Facsimile – (617) 551-8820

APPENDIX A

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ALIGN calculates a global alignment of two sequences
 version 2.0uPlease cite: Myers and Miller, CABIOS (1989)
>AY365135 (Hs Dectin-2)              209 aa vs.
>Tango405                            209 aa
scoring matrix: BLOSUM50, gap penalties: -12/-2
100.0% identity;        Global alignment score: 1495

               10        20        30        40        50        60
/tmp/s MMQEQQPQSTEKRGWLSLRLWSVAGISIALLSACFIVSCVVTYHFTYGETGKRLSELHSY
       ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
Tango4 MMQEQQPQSTEKRGWLSLRLWSVAGISIALLSACFIVSCVVTYHFTYGETGKRLSELHSY
               10        20        30        40        50        60

               70        80        90       100       110       120
/tmp/s HSSLTCFSEGTKVPAWGCCPASWKSFGSSCYFISSEEKVWSKSEQNCVEMGAHLVVFNTE
       ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
Tango4 HSSLTCFSEGTKVPAWGCCPASWKSFGSSCYFISSEEKVWSKSEQNCVEMGAHLVVFNTE
               70        80        90       100       110       120

              130       140       150       160       170       180
/tmp/s AEQNFIVQQLNESFSYFLGLSDPQGNNNWQWIDKTPYEKNVRFWHLGEPNHSAEQCASIV
       ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
Tango4 AEQNFIVQQLNESFSYFLGLSDPQGNNNWQWIDKTPYEKNVRFWHLGEPNHSAEQCASIV
              130       140       150       160       170       180

              190       200
/tmp/s FWKPTGWGWNDVICETRRNSICEMNKIYL
       ::::::::::::::::::::::::::::::
Tango4 FWKPTGWGWNDVICETRRNSICEMNKIYL
              190       200
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